WINCOR NIXDORF

TH230/TH230+

Thermal Printer

User Manual

We would like to know
your opinion on this publication.

Please send us a copy of this page
if you have any constructive criticism on:

- the contents
- the layout
- the product

We would like to thank you in advance
for your comments.
With kind regards,

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Your opinion:

TH230
TH230+

Thermal Printer

User Manual

Edition May 2011

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Manufacturer´s Certification

The device complies with the requirements of the EU directive 2004/108//EC with regard to ‘Electromagnetic compatibility.

Therefore, you will find the CE mark on the device or packaging.

Tested Safety

The TH230/TH230+ has been provided with the symbol for “Tested Safety”.

In addition, the TH230/TH230+ has received the UL symbol and cUL symbol.

FCC-Class A Declaration

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Modifications not authorized by the manufacturer may void user’s authority to operate this device. This class A digital apparatus complies with Canadian ICES-003.

Cet appareil numerique de la classe A est conforme à la norme NMB-003 du Canada.

Warranty

Wincor Nixdorf generally guarantees a limited warranty engagement for 12 months beginning with the date of delivery. This warranty egagement covers all those damages which occur despite a normal use of the product.
Damages because of
- improper or insufficient maintenance,
- improper use of the product or unauthorized modifications of the product,
- inadequate location or surroundings
will not be covered by the warranty.

All parts of the product which are subject to wear and tear are not included in the warranty engagement.

Safety Instructions

Do not touch the cutter and tear bar of the printer.

The print head is a thermal element and it is at high temperature during printing or just after operation, therefore please do not touch it and its peripherals for safety reasons.

The thermal head is an ESD-sensitive device. To prevent damage, do not touch either its printing part or connecting parts.

Caution:

- Install the printer on a flat and stable place.
- Reserve adequate space around the printer so that convenient operation and maintenance can be performed.
- Keep the printer away from water source.
- Do not use or store the printer in a place exposed to heat of fire, moisture, serious pollution and direct sunlight.
- Do not place the printer on a place exposed to vibration or impact.
- No dew condensation is allowed to the printer. In case of such condensation, do not turn on the power until it has completely gone away.
- Connect the DC adapter to an appropriate grounding outlet. Avoid sharing a single electrical with large power motors and other devices that may cause the fluctuation in voltage.
- Disconnect the DC adapter when the printer is not used for a long time.
- Don’t spill water or other materials on the printer. If this happens, turn off the power immediately.
- Do not allow the printer to start printing when there is no recording paper installed, otherwise the print head and platen roller will be damaged.
- To ensure quality print and normal lifetime, use recommended or good quality paper.
- Shut down the printer when connecting or disconnecting interfaces connectors to avoid damage to the control board.

- Set the print darkness to a lower grade as long as the print quality is acceptable. This will help to keep the print head durable.
- The printer should only be disassembled or repaired by a technician, who is certified by Wincor Nixdorf.
- Operate the printer only with power supplies and cables approved by Wincor Nixdorf
- Keep this manual safe and at hand for ready reference.

Overview

Introduction

The TH230 and the TH230+ are powerful and low cost thermal printers for all kind of POS systems.
In the following both printer will be mentioned as TH230. Only differences will be described as TH230 and TH230+.

Operator Panel

FEED

If you push this button once and release it, the printer feeds paper for one line (1/6 inch).
If you push this button and hold it down, the printer feeds the paper as long as the button is not released.
The button can be locked by the application software and then will be without function.

POWER

All LED off:	power is not stable
Green POWER LED on:	power is stable
Green POWER LED blinking:	printing speed may be low (*) if necessary contact your technical support
Green POWER LED flashes:	printer in idle mode

(*) The printer will run with the lowest power value (48W) if a non current power supply unit from Wincor Nixdorf or an external power supply unit without automatic current identification is used.
With a suitable power supply unit type the maximal power value can be defined with the configuration menu from 48 Watt up to 90 Watt.

PAPER

Yellow PAPER LED off:	Paper is properly inserted.
Yellow PAPER LED on:	Paper roll is near end.
Yellow PAPER and red ERROR on:	Paper end is reached.

ERROR

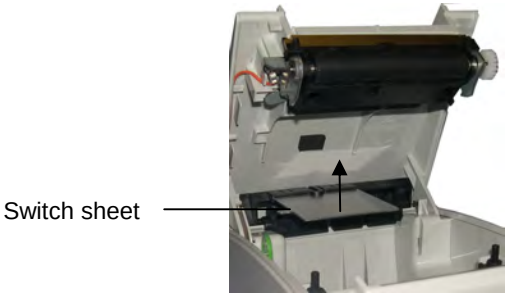
Red ERROR LED off:	ormal condition
Red ERROR LED on:	not ready for operating. Printer cover is not closed or in combination with Yellow PAPER LED on, paper end is reached
Red ERROR LED blinking:	an error occurs. Switch the printer off and on again. Contact your technical support if this does not work.

LED overview

	POWER green	PAPER yellow	ERROR red	Meaning
	off	**off**	**off**	No power
Operation	**on**			Power on
	blinking			If necessary call for technical support
	flashing			IDLE mode (power savings)
		off		Paper properly inserted
Paper		**on**		Paper near end
		on	**on**	Paper end
Error			**blinking**	If necessary call for technical support
			on	Cover not closed

OPEN

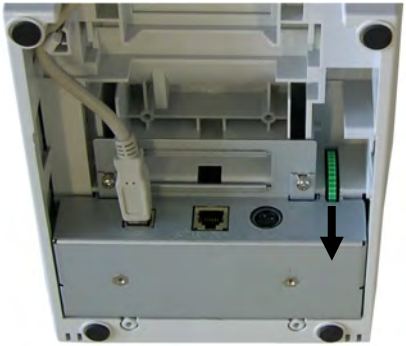
Press this button to unlock and open the cover. Thereby the switch sheet flaps into an upright cover position



Caution: If an error occurs do not open the cover with force

Open the printer cover only if the cutter is in its home position. Otherwise the cutter or the cover may be damaged.

To put the cutter to the home position: Lift the printer and turn the green handwheel at the bottom of the printer towards the printer front side as far as it will go.



On/off Switch

Pressing this button will switch the printer on or off.
To switch off the printer press the button for at least one second.

The button can be locked by the application software and then will be without function.

Maintenance of the TH230

Print Head / Rubber Roller Cleaning

Clean the print head and the rubber roller at least every three months. In case of an intensive use of the printer clean both items more often to guarantee a stable print quality.

Rubber roller

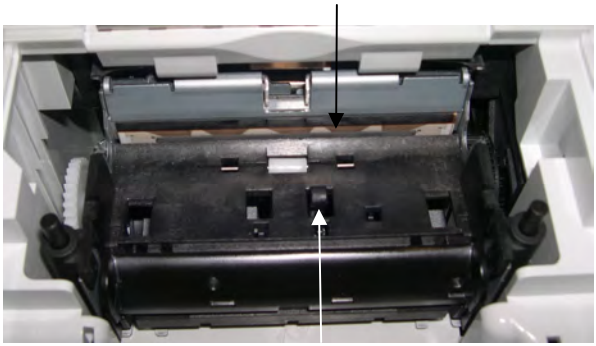
Print head

Open the printer cover and remove the paper-roll; the rubber roller and the print head mechanism are then visible.

Caution: **Let the print head cool down before cleaning it.**

Clean print head and rubber roller with a soft lint-free cloth moistened with pure Isopropyl alcohol (e.g. ISOPADS which can be ordered at Wincor Nixdorf).

Visually inspect the print head. If you can still see dirt, the cleaning procedure must be repeated. You can identify the relevant and important thermal element zone by the thin line crossed by wires.



Paper end sensor

Pay attention not to damage the paper end sensor when cleaning the print head.

Caution: **Do not touch the rubber roll with your fingers.**

While cleaning turn the rubber roller by hand with the lateral gear wheel Make sure that the entire roller will be cleaned.

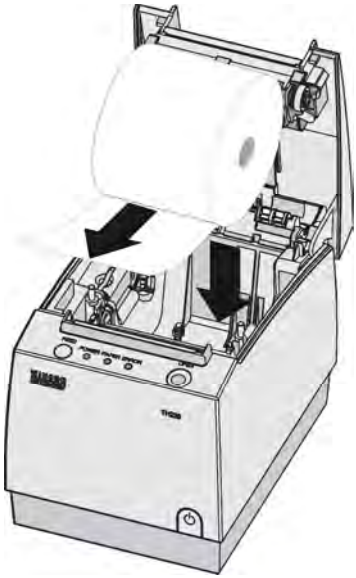
Caution: **Cleaning the print head not properly, may cause an early failure**. **Wait until the isopropyl alcohol is evaporated.**

Insert the (new) paper-roll and close the cover. Print out a test ticket (see application handbook) and verify the printing quality (density, alignment and consistency).

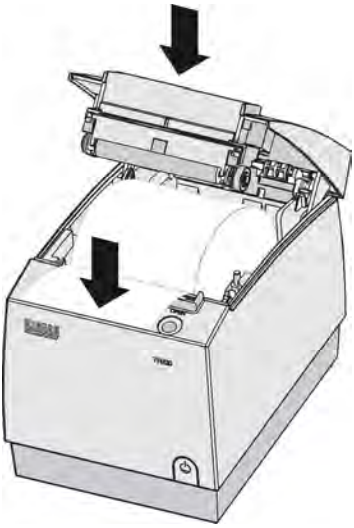
Paper Roll Exchange

For a paper roll exchange follow the steps below:

- Open the printer cover
- Remove the (nearly) empty paper roll and any residual paper.
- If necessary clean the print head and the rubber roller.
- Unwind the outer layer (winding) of the paper roll.
- Insert the paper roll. Lay the unwinded paper over the front edge of the printer.



- Hold down the paper and close the printer cover. Press on the middle of the cover until it audibly and distinctly locks into place.

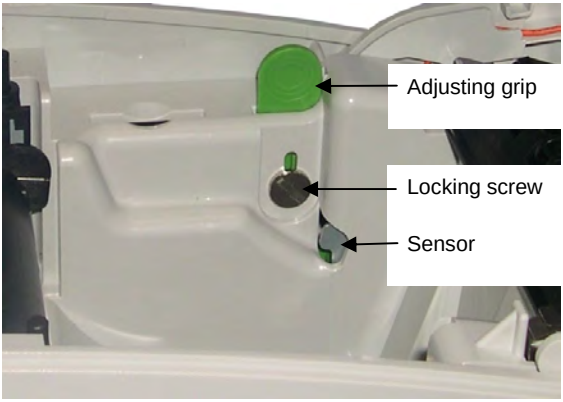


- Tear off residual paper at the tear-off edge.

Paper Near End Sensor Adjustment

The paper end premonition is a control function. It allows to adjust a predefined amount of remaining paper on the roll.
The paper end premonition depends on the core diameter and the paper thickness of the paper roll in use.
You can adjust the remaining amount of paper yourself follow the steps below:

- Open the printer cover.
- Remove the paper roll.
- Loosen the locking screw at the inner wall of the printer for instance with the aid of a coin (do not remove the screw).

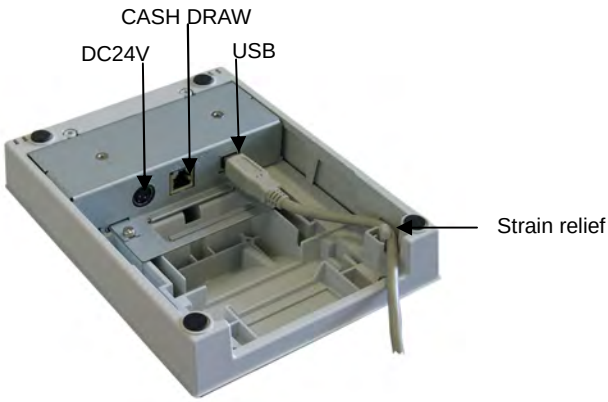


Move the adjusting grip to determine the remaining paper amount.
A lower distance mark (adjustment grip downwards) will cause a lower amount of remaining paper and vice versa:
The scale reaches from 0.5mm to 12.5mm.

After determination of the distance mark:
- Tighten the locking screw
- Insert the paper roll
- Close the printer cover and lock it

Connecting the TH230

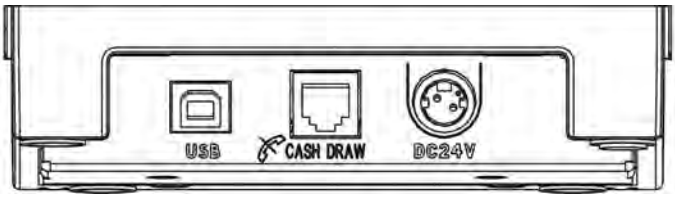
The connectors are located at the bottom side of the printer.
The picture shows the USB/CASH DRAW/DC24V variant.



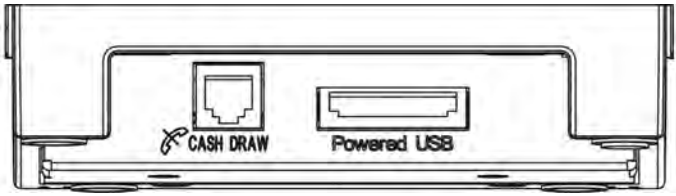
Connect the hosiden plug of the low voltage cable to the low voltage socket of the printer (DC24V). Make sure that the plug is connected tightly. Check this by slightly pulling at the low voltage cable.
Connect the plug from the USB data cable to the USB socket at the printer and guide the cable through the strain relief.
Connect the cable from the cash drawer to the CASH DRAW socket of the printer. Inserting the plug will automatically lock it.
The current drain of the cash drawer from the printer must not exceed 1A@24V.

Connector Variants

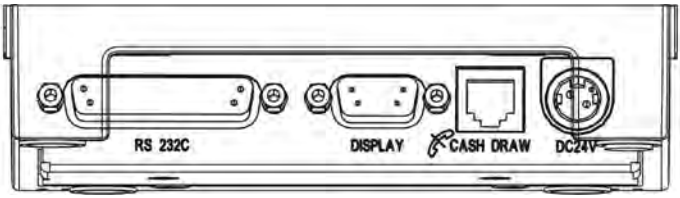
USB/CASH DRAW/DC24V



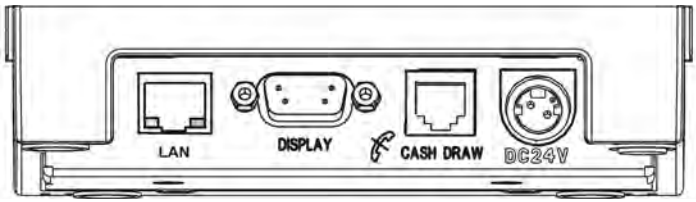
CASH DRAW/Powered USB



RS232/DISPLAY/CASH DRAW DC24V



ETHERNET/ DISPLAY/ CASH DRAW/ DC24V



Cash Drawer Connector

RJ12 connector pin usage

PIN	Description
1	Frame Ground
2	Opening pulse for cash drawer 1
3	Status cash drawer 1 and 2
4	+24V DC
5	Opening pulse for cash drawer 2
6	Signal Ground

The Wincor Nixdorf cash drawers KA17, KA18 and KA21 can be connected by cash drawer cables (CR KB – 0930; CR KB – 0940; CR KB – 0941, cable lengths: 0.8m; 1.5m; 5.0m).

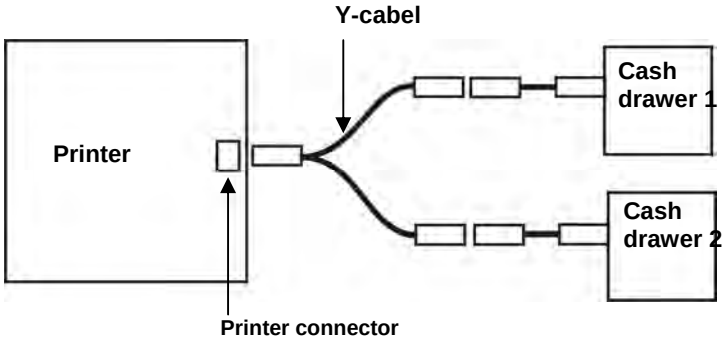
Caution: **Connect cash drawers only.**

Cash Drawer Cables

The cash drawer cable connects the printer to one or two cash drawers.

Caution: **Be careful to connect correct cable to the printer-cash drawer connector.**

Plug the cable into the cash drawer connector (standard phone jack) located at the rear of the printer.
If your system has two cash drawers, attach a Y-cable to the printer's cash drawer connector as shown.



Self Test Printout

1) Turn off the printer. Press the On/Off button for at least one second.

2) Push the FEED button while turning on the printer.

A service menu will be printed.

3) Press the FEED button two times shortly to select the self test. Press same button for more than one second to start the printout.

TH230
Self Test

Hardware Information:
Manufacturer : WINCOR-NIXDORF
Serial Number : 54AX600050
PCB Version : C
Production Date : 11-AUG-2006
Interface ID : 20
Interface Board : USB (Full-Speed)
PoweredUSB
Cash Drawer

Software Modules:
Firmware : 01.08
Booter : 00.06
Loader : 01.01
Status : Verified
Power Up Test : 01.00
Checksum : OK
Character Font : StdCodePages
Font Version : 01.02

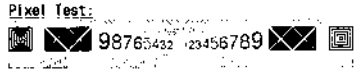
Printer Settings:
Black Mark Sensor : disabled
Endurance Test : disabled
Automatic LF : enabled
Power Button : enabled
Power-ON Notice : disabled
Paper-NE Notice : enabled
Receipt Shooting : enabled
Shoot Flush Time : endless
Idle Mode : enabled
Max. Power : 90 W
Max. Speed : 220 mm/sec
Endurance Tickets : 100
Paper Width : 80 mm
Print Density : 100 %
Paper Type : single color
Code-128 ChkDigit : enabled
ITF Leading Zero : enabled
Bcc String Term : enabled
Leg. Printer Supp. : disabled
Default Code Page : 0
Autorecovery : off
Orig.-Controller : yes

Idle Mode:
Waiting Time : 10 sec
Cash Drawer Delay : 1.7 sec

Sensor Information:
Sensor Plug Detection
Black Mark Sensor : not available

Measured Values:
Supply Voltage : 25.0 V
Printhead Temp : 27.9 °C

Pixel Test:



*** completed ***

TH230+
Self Test

Hardware Information:
Manufacturer : WINCOR-NIXDORF
Serial Number : S8AX029890
Manufactured Board: D
Production Date : 04-SEP-2010
Interface ID : 90
Interface Board : USB (Full-Speed)
RS232
Cash Drawer

RS232 Settings:
Parameter : 19200 - 8N1
Handshake : CTR/DSR
Receive Buffer : large (4 kB)
Receive Error : ignore

Software Modules:
Firmware : 01.04
Booter : 01.00
Loader : 01.01
Status : Verified
Power Up Test : 01.00
Checksum : OK
Character Font : StdCodePages
Font Version : 01.03

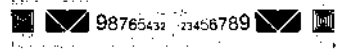
Printer Settings:
Black Mark Sensor : disabled
Endurance Test : disabled
Automatic LF : enabled
Power Button : enabled
Power-ON Notice : disabled
Paper-NE Notice : enabled
Receipt Shooting : disabled
Shoot Flush Time : endless
Idle Mode : enabled
Max. Power : Auto 110 W
Max. Speed : 300 mm/sec DRAFT
Endurance Tickets : 500
Paper Width : 80 mm
Print Density : 100 %
Paper Type : single color
Code 128 ChkDigit : enabled
ITF Leading Zero : enabled
Bcc String Term : enabled
Leg. Printer Supp. : disabled
Default Code Page : 0
Autorecovery : off
Orig.-Controller : yes

Idle Mode:
Waiting Time : 1 min
Interface Power : on
Cash Drawer Delay : ignored

Sensor Information:
Sensor Plug Detection
Black Mark Sensor : not available

Measured Values:
Supply Voltage : 24.9 V
Printhead Temp : 26.3 °C

Pixel Test:



*** completed ***

4) Press the FEED button one time shortly and one time for more than one second to end the self test.

Energy-saving Mode (TH230+ always, TH230 as of firmware 1.06)

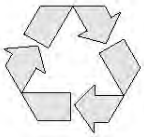
If the TH230 is switched on but without a print job it stays in standby mode, which means, that all functions of the printer are powered with low voltage to be ready for operation.

In order to save more energy the printer changes into idle mode after an adjustable waiting time. Under idle condition the least amount of energy will be consumed. The mode will be indicated by flashing of the POWER LED.

If the printer receives print data it will change into full powered printing mode. Having done the print job the TH230 will turn to standby mode and then to idle mode again.

In the delivery status of the printer the function “idle mode” will be deactivated. The function and the according waiting time must be enabled in the configuration menu or via software.

Recycling the TH230/TH230+



This product was designed according to our internal norm “Environmental conscious product design and development”.
The TH230/TH230+ thermal printer is manufactured without the use of CFCs und CCHS and is produced mainly from reusable components and materials.

Please do not stick labels onto plastic case parts. This would help us to re-use components and material.

Wincor Nixdorf disposes of old units in an environmentally friendly manner in a recycling centre which, like the entire company, is certified according to ISO 9001 and ISO 14001.

Your local representative is available to answer any questions you may have regarding return, recycling or disposal of our products.

Technical Data

Technology	High-speed thermal print
Resolution	8 dots/mm (203 dpi)
Printing speed	One colour: 220 mm/s, Two colours: 110 mm/s TH230+ draft mode up to 300 mm/s (reduced density)
Cash Drawer Interface	6pin RJ12, 1A@24V max.
Interface Options	USB 2.0 full speed, PoweredUSB, RS232c, Ethernet
Cutter	Material: tempered steel Speed full cut: < 300ms
Paper Transport	Forward; to use paper to full capacity after cutting: up to 12mm backwards (approx. 3.5 lines at 7.52 lpi)
Control Functions	Print head temperature control with adjustment of Print speed Paper near end control and paper end control Paper cutter error message Printer cover open/closed Self test with printout
Option	Paper width 57,5mm, print width =51mm = 408 dot
Housing Colour	light grey or black

Power Supply	24 V DC Automatical and manual capacity control: 48 – 110 Watt
Dimensions	148 x 145 x 195mm (H x W x D)
Weight	approx. 2kg (w/o paper roll)
Features	Simple Paper roll exchange: Optional two colour print with special paper (100mm/sec) Paper near end message: adjustable by user
Statistical Data:	· Total number of dots · Total line feeds · Total number of cuts · Max. head temperature Paper jam counter · Cutter error counter · Thermistor error counter · High voltage/low voltage error counter · Number of firmware updates · Power on time in hours · Power on counter
Environmental Conditions	5° - +45° Celsius;
Humidity	5 % - 95% (not condensed)
Noise	<= 55dB (A) operation

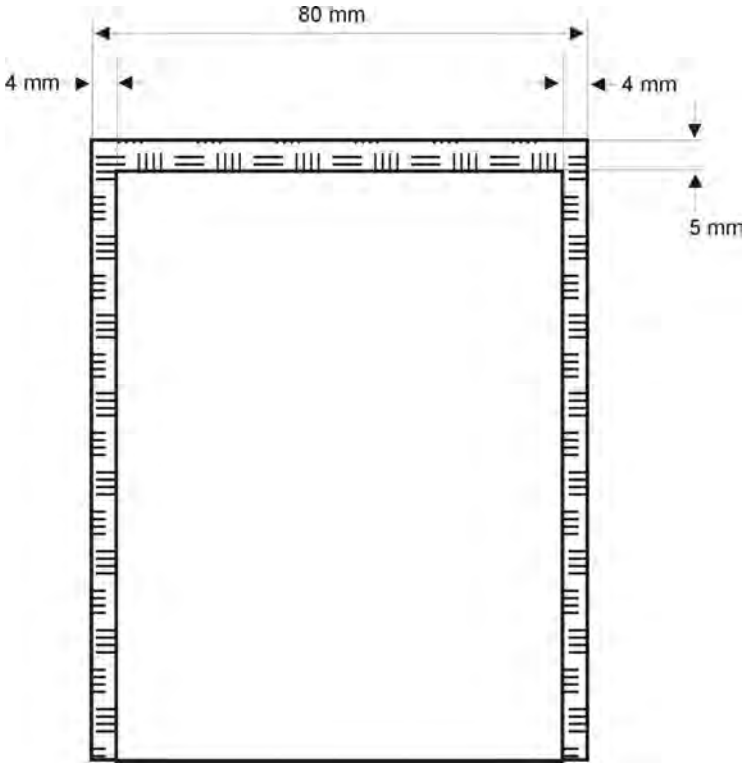
Reliability	TH230+	TH230	
	3 Mio	1,5 Mio	cuts with 55g/m²
	150 km	150 km	at 12,5% print density

Graphic Feature	TH230/TH230+ is fully graphic-compliant

Paper Specification

Paper width	79.5mm - 80mm optional 57.0 - 57,5mm,
Paper weight	55g/m² ± 5 g/m²
Paper thickness	0.055mm – 0.08mm
Thermo-Coat	Outside of paper roll
Paper roll outer diameter	90mm max.
Paper roll width	80.3 mm max.
Paper length	~100m
Core size	Core diameter: 10mm +2mm Wall thickness of the core: 2mm ± 0.3mm; Paper end not glued to core. Length of paper fold over at core: max 35mm

Print Area



For optional paper width 57,5mm,
print width =51mm = 408 dot

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